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Napoleon, Bourses, and Growth: With a Focus on Latin America

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Abstract: Stock markets are not merely casinos. A growing body of research suggests that access to well-functioning stock markets helps spur economic development. Of equal relevance to policymakers, countries where legal codes stress the rights of shareholders and where the regulatory system rigorously encourages corporate information disclosure tend to have better developed financial markets**.** Many Latin American governments fail to augment the functioning of private markets. Specifically, many Latin American governments do not encourage the dissemination of comparable high-quality corporate financial statements and they fail to provide effective legal protection to minority shareholders. Part of Latin America's approach to markets is due to its Napoleonic legal heritage. Together, these legal/regulatory features help account for the comparably under-developed state of Latin America's bourses and its disappointing growth.

I. Introduction

Developing country stock markets account for a disproportionately large share of the boom in global stock market activity. The value of equity market transactions in emerging economies soared from about 2 percent of the world total in 1986 to 12 percent in 1996.[1] This boom was accompanied by an explosion of international capital flows, especially flows into developing country stock markets. Net private capital flows to developing nations jumped ten-fold over the

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[1] These figures are from the International Finance Corporation's *Emerging Markets Facts Book* and use their classification of emerging and developed markets. Hong Kong and Singapore are classified as developed. Shifting them into the emerging market category makes the disproportionate boom in emerging markets even more noticeable.

past decade, exceeding $250 billion in 1996.[2] Moreover, while equity flows were a negligible part of capital flows to emerging markets a decade ago; equity flows represented about 20 percent of private capital flows to developing nations by 1996. More recently, the dramatic financial disturbances emanating from Asia have curtailed some capital flows and raised question about the role of financial markets.

These developments raise critical questions for policymakers. Are developing country stock markets simply casinos where foreigners place bets? Or, do developing countries themselves reap large benefits from liquid equity markets? If better stock markets are important catalysts of economic development, what can policymakers do to improve the functioning of their bourses?

In addressing these policy issues, this paper makes three points.

- First, stock market development, especially stock market liquidity, exerts a positive, first-order impact on economic development. A growing body of research supports the view espoused by Walter Bagehot over 100 years ago: ***better functioning financial markets cause faster economic growth.***
- Second, particular laws and regulations materially affect the operation of stock markets. Cross-country differences in laws concerning the rights of shareholders, especially minority shareholders, help explain the level of stock market development. Also, countries with companies that provide high-quality, comprehensive, and comparable financial statements tend to enjoy better developed stock markets than countries where regulatory systems are less effective in encouraging firms to publish useful information. Thus, governments can augment the functioning of private markets and thereby boost economic growth by effectively protecting property rights and by facilitating the dissemination of information. ***In sum, countries where legal codes stress the rights of shareholders and where the regulatory system rigorously encourages corporate information disclosure tend to have better developed financial markets.***
- Third, relatively uninformative financial statements combined with relatively weak legal protection of minority shareholders help account for the comparably under-

[2] The capital flow figures are from World Bank, *Private Capital Flows to Developing Countries*, Oxford

developed state of Latin America's stock exchanges and its disappointingly slow growth. Part of these characteristics can be traced back to Latin America's French legal tradition. The Napoleonic Civil Code had a profound impact on many legal systems. The French-Napoleonic legal tradition, however, is strongly associated with relatively under-developed financial systems.[3] ***Once one views the strong empirical connection between the legal and regulatory environment, the financial system, and growth, Latin America's legal and regulatory systems stand out as deserving particularly careful scrutiny as it looks to accelerate economic development.***

Methodologically, the paper primarily uses cross-country comparisons based on data from 45 countries over the period 1976-1994. Each country is only one observation. Two major weaknesses of this methodology are that it does not provide a detailed evaluation of the particular circumstances of any individual country; and, it focuses attention on Latin America as a region, instead of on individual countries. The strength of this analysis is that it places Latin America in an international context. This is critically important. The cross-country comparisons suggest an urgency that would not emerge from a country-specific study. Namely, Latin America, on average, has notably weaker legal codes in terms of the protection of minority shareholders than the rest of the world. To an even greater degree, Latin American companies tend to publish lower quality and less comprehensive financial statements. Taking the strengths and weaknesses of this cross-country methodology together, the results offer a broad reform strategy. The results do not offer a precise blueprint of how to reform the policies of any particular country.

The paper proceeds as follows. Sections II and III discuss the theories and empirical evidence regarding the ties between stock markets, banks, and economic growth respectively. Here, the issue is not whether stock prices efficiently reflect expectations about future corporate profits. Similarly, the issue is not whether quickly rising stock prices are good or bad. The issue is whether a well-developed stock market ***– a market where it is relatively easy to trade ownership of the country's companies –*** helps that country grow faster.

University Press, 1997.

[3] See especially LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998,1997), but also Levine (1998, 1999), and section III below.

The data show that even after controlling for many factors associated with growth, stock market liquidity -- *as measured both by the value of stock trading relative to the size of the market and by the value of trading relative to the size of the economy* -- is positively and significantly correlated with future rates of long-run economic growth. A growing body of microeconomic evidence supports this finding. These results are consistent with the view that a greater ability to trade ownership of an economy's companies facilitates faster economic growth. Moreover, the level of banking development -- *as measured by bank loans to private enterprises divided by GDP* -- also helps in predicting economic growth. Since measures of stock market liquidity and banking development both enter the growth regressions significantly, the findings suggest that banks provided different financial services from those provided by stock markets. Banking and stock market development in developing countries tend to complement each other, not substitute for the other.

Since better stock markets seem to boost economic development, policymakers have a responsibility to implement legal, regulatory, and policy reforms that promote healthy stock market development. In turn, researchers have a responsibility to identify legal, regulatory, and policy reforms that promote healthy stock market development. Thus, Section IV examines the relationship between stock market development and both the legal rights of shareholders and the degree to which the regulatory regime successfully encourages firms to publish comprehensive financial statements.

The data suggest a strong link between stock market development and a country's legal and regulatory environment. Countries were the legal system emphasizes the rights of minority shareholders and where the regulatory/accounting regime produces high quality information about firms have larger stock markets, where size is measured both by market capitalization and by the number primary market issues. Furthermore, the relationship between accounting standards and stock market liquidity is significant and economically meaningful. The data imply that one standard deviation increase in information disclosure increases liquidity by the median value of the sample.

Next, the paper confronts the issue of causality. It traces the impact of differences in the legal and regulatory environment on stock market development through to economic growth. Specifically, I use measures of the legal rights of minority shareholders and the regulatory regime's ability to encourage high-quality corporate reports as instrumental variables. I use these instrumental variables to extract the exogenous component of stock market development – the component of stock market development defined by the legal and accounting environment. There are good reasons to use measures of the legal and regulatory environment as instrumental variables. First, they are direct policy levers. Second, the current legal/regulatory environment has been heavily influenced by legal heritage. In particular, LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998,1997) show that differences in the legal treatment of shareholders and the quality of corporate annual reports are systematically linked to the country's legal origin. Based on the work of legal scholars, they categorize countries as having predominantly English, French, German, or Scandinavian legal origins. Since most countries obtained their legal systems through occupation and colonization and since these systems vary little over time, the legal variables are treated as exogenous for the 1976-1993 period. Thus, I test whether the exogenous component of stock market development – *the component of stock market development defined by the legal and accounting regime* – is positively associated with long-run economic growth.

The impact of the exogenous component of stock market development on economic growth is positive, statistically significant, robust, and economically meaningful. The results imply that if Latin America implemented regulatory reforms that improved the quality of its corporate statements from its current value of 48 to the average for the OECD (65), then this would boost stock market liquidity and thereby accelerate real per capita GDP growth by 0.5 percentage points per year. This is large, considering that median real per capita GDP growth for the whole sample is only about 1.9 percent. Moreover, the econometric specification passes the test of the overidentifying restrictions. This implies that the specific legal variables used in this paper do not influence growth beyond their influence on financial development (and the other regressors). Thus, the strong, positive relationship between financial market development and economic growth is not due to simultaneity bias.

Section V spends considerable space highlighting this paper's limitations. Section VI provides policy recommendations and attempts to go beyond the specific legal and regulatory variables used in this paper. There may be ways of improving the position of minority shareholders and the quality of published information on firms without fundamentally altering legal codes. These suggestions may offer practical avenues for boosting financial system development and growth.

II. Theory: Stock Markets and Economic Development

A. Finance and growth: A theoretical overview

There are good theoretical reasons for believing that the financial system influences the rate of economic growth.[4] In a frictionless world, capital flows toward the most profitable activities and it is easy to write and enforce contracts that align the interests of managers and owners. Similarly, in a frictionless world, individuals costly diversify and pool risks and easily find buyers or sellers for securities at well-known prices. But, the world is not frictionless. There are large costs associated with researching firms. There are large information and contracting costs associated with monitoring managers and encouraging them to act in the best interests of firm owners.[5] It is expensive to mobilize capital from disparate savers. Furthermore, an array of costly contractual and institutional arrangements must arise to reduce the costs to savers and investors of pooling risk and trading securities. Financial contracts, markets, and intermediaries have emerged to mitigate the negative consequences of these information, transaction, and contracting costs.[6] These financial arrangements can reduce the adverse effects of market frictions on resource allocation and growth.

Countries have different financial systems due to differences in legal tradition, politics, policies, natural resource endowments, and perhaps historical accidents. Financial systems differ in their ability to identify profitable ventures, mobilize capital to fund those ventures, monitor and create appropriate incentives for corporate managers, facilitate risk management and transactions, and augment the ease and confidence with which agents can exchange assets. These differences may have profound implications on economic growth.

B. Theoretical issues on the channels from stock market to growth

An important channel via which financial systems affect economic activity is through productivity. For example, Joseph Schumpeter (1912, p. 74) argued that, “The banker, therefore, is not so much primarily a middleman, … He authorises people, in the name of society as it were,

[4] See Levine (1997) for a detailed discussion of the links between the financial system and economic development.

[5] See Shleifer and Vishny (1997).

[6] See, for example, Gale and Hellwig (1985) on debt instruments, Merton (1992) and Crane et al (1995) on more sophisticated financial contracts, Levine (1991) and Bencivenga et al (1995) on stock markets, and Boyd and Prescott (1986) on financial intermediation.

[to innovate].” Thus, financial markets are not simply pipes via which funds flow. According to Schumpeter, better financial systems will find better quality investments, so that better financial markets boost overall economic development by boosting productivity growth.

Better functioning equity markets may also affect productivity. Many profitable investments require a long-term commitment of capital, but investors are often reluctant to relinquish control of their savings for long periods. Liquid equity markets make long-term investment more attractive because they allow savers sell equities quickly and cheaply if they need access to their savings. At the same time, companies enjoy permanent access to capital raised through equity issues. By facilitating longer-term, more profitable investments, liquid markets improve the allocation of capital and thereby boost productivity growth.[7]

Stock markets may also exert a positive impact on productivity growth by stimulating the acquisition of information about firms. Specifically, investors want to make a profit by identifying undervalued stocks and exploiting this information by buying or selling equities quickly and cheaply in liquid markets. If markets are liquid, this will create incentives for investors to evaluate firms energetically. Alternatively, if markets are illiquid, investors have fewer incentives to undertake the costly process of researching firms because they will not be confident about exploiting any information advantage they have garnered in the market.[8] Thus, by stimulating the acquisition of information about firms, liquid stock markets can improve the allocation of capital.

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[7] This has been shown formally by Levine (1991) and Bencivenga et al (1995).

[8] See Kyle (1984). Also, stock market development can promote corporate governance by making it easier to write managerial performance contracts that align the interests of managers and owners. See Holmstrom and Tirole (1993).

C. Adverse implications of stock markets

Contentious theoretical debate exists, however, about the impact of financial systems in general and stock markets in particular on economic development.[9] Theory suggests that greater stock market liquidity has ambiguous effects on savings: if greater liquidity boosts the returns to investment, this increase in returns has ambiguous effects on saving rates due to well-known income and substitutions effects. So, to the extent that financial development boosts investment returns, it is unclear what will happen to saving rates.[10]

Moreover, theoretical debate exists about whether greater stock market liquidity actually encourages a shift to higher-return projects that stimulate productivity growth. Since more liquidity makes it easier to sell shares, some argue that more liquidity reduces the incentives of shareholders to undertake the costly task of monitoring managers (Shleifer and Vishny 1986; Shleifer and Summers 1988; Bhide 1993). In turn, weaker corporate governance impedes effective resource allocation and slows productivity growth

D. Theory: Stock markets and banks may not be substitutes

Traditionally, development specialists have focused on banks and viewed stock markets as unimportant sideshows. They note that much more corporate capital is raised from banks than from equity issues. This traditional view ignores an important point: stock markets may provide different financial services from banks. Put differently, stock markets may positively affect economic development even though not much capital is raised through them. For instance, stock markets may play a more prominent role in easing the risk trading and boosting liquidity. In contrast, banks may focus more on establishing long-run relationships with firms and monitoring managers. To grow, economies need both liquidity and information about managers and projects.

The point is not to draw too sharp a line between banks and markets. Like stock markets, banks help savers diversify risk and provide liquid deposits, which assists economic activity. Like banks, stock markets may stimulate the acquisition of information about firms, because investors want to make a profit by identifying undervalued stocks. The point is simply to highlight the empirical nature of the questions at hand: Do stock markets boost economic development? Do

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[9] See Ross Levine, "Financial Development and Economic Growth: Views and Agenda," *Journal of Economic Literature*, June 1997.

[10] Also, if there are capital externalities, a drop in savings could put sufficient downward pressure on growth, so that over all GDP growth falls even as productivity rises.

stock markets boost economic development independently of the level of banking development? Are there interactions between stock markets and banks?

III. Evidence on Stock Markets, Banks, and Economic Growth

Substantial evidence supports the view that better financial systems in general and stock markets in particular boost economic growth. Levine (1997) compiles and analyzes this evidence. Consequently, the following sections present figures that summarize the main cross-country findings on stock markets and growth. These involve data on a maximum of 45 countries over the period 1976-1993.[11] The section also presents new evidence on the impact of primary market development on economic growth. This contrasts with past work, which focuses exclusively on secondary market development. Furthermore, I also summarize microeconomic and time-series evidence regarding the link between stock markets and growth. Special attention is given to the joint role of banks and stock markets in facilitating economic development.

A. Measures of stock market development

This paper uses two measures of stock market liquidity. The first equals the total value of the trades of domestic stock on domestic stock exchanges divided by GDP and is called ***Value Traded***.[12] While not a direct measure of trading costs or the uncertainty associated with trading on a particular exchange, theoretical models of stock market liquidity and economic growth directly motivate Value Traded (Levine 1991; Bencivenga et al. 1995). Value Traded measures trading volume as a share of national output and should therefore positively reflect liquidity on an economy-wide basis. The value-traded ratio is likely to vary with the ease of trading: if it is costly and risky to trade, there will tend to be less trading.

The second measure of stock market liquidity, ***Turnover***, equals the value of domestic shares traded on domestic exchanges divided by the value of listed shares. While Value Traded

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[11] The following countries were used in the analyses: Argentina, Australia, Austria, Bangladesh, Belgium, Brazil, Canada, Chile, Colombia, Cote d'Ivoire, Costa Rica, Germany, Denmark, Egypt, Spain, Finland, France, United Kingdom, Greece, Hong Kong, Indonesia, India, Israel, Italy, Jamaica, Jordan, Japan, Korea, Luxembourg, Mexico, Malaysia, Morocco, Nigeria, The Netherlands, Norway, New Zealand, Pakistan, Peru, Philippines, Portugal, Singapore, Sweden, Sri Lanka, Thailand, Turkey, Taiwan, United States, Venezuela, and Zimbabwe.

[12] Stock market data are from the *International Finance Corporation's Emerging Market Data Base* (electronic version) and the *International Monetary Fund's International Financial Statistics*.

captures trading relative to the size of the economy, Turnover measures trading relative to the size of the market. Thus, a small, liquid market will have high Turnover but small Value Traded.

To measure the size of the secondary market, I use ***Capitalization***, which equals the value of listed domestic shares on domestic exchanges divided by GDP. Although large markets do not necessarily function well and taxes may distort incentives to list on the exchange, many observers use Capitalization as an indicator of market development.

To measure the size of the primary market, I use ***IPO***, which equals the number of initial public offerings of shares in each country relative to the size of the population (in millions). While initial public offerings may reflect many phenomena, I wanted to get some indication of external equity financing. This measure is taken from LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1997). Where as the other stock market indicators are available for the period 1976-1993, IPO is measured only over the period mid-1995 to mid-1996 due to data availability.[13]

Finally, I use a measure stock return volatility. Specifically, ***Volatility*** is as a twelve-month rolling standard deviation estimate that is based on market returns, where the return series is cleansed of monthly means and twelve months of autocorrelations [Schwert 1989].

B. Liquidity and growth

This subsection begins an assessment of whether developing country stock markets are simply casinos where an increasing number of foreigners are coming to place bets, or whether the developing countries themselves reap large benefits from having access to liquid stock markets. The data suggest that stock markets are not simply casinos. There is a very strong link between stock market liquidity and future long-run growth.

Figure 1 shows that countries that had relatively liquid stock exchanges in 1976 tended to grow much faster over the next 18 years. To illustrate this, I use Value Traded for the 38 countries with data in 1976. The countries are first ranked by the liquidity of their stock markets. The first group has the nine most illiquid markets; the second group has the next 10 most illiquid markets; the third group has the next 10; and the final group has the nine countries with the largest value-

[13] I am in the process of expanding the data to more years and to measure the quantity of funds raised through equity issues.

traded ratios. Figure 1 shows there is a systematic relationship between initial liquidity and future real per capita GDP growth.[14]

For developing countries, the returns to boosting stock market liquidity may be large. Here, it is important to note that the strong link between liquidity and growth remains strong even after controlling for cross-country differences in inflation, fiscal policy, political stability, education, the efficiency of the legal system, exchange rate policy, and openness to international trade as shown in Levine and Zervos (1998a). Thus, it is not that stock market liquidity is merely highly correlated with non-financial factors that are the real causes of economic growth. Raising stock market liquidity may independently produce big growth dividends. For example, regression analyses imply that if Mexico's value-traded ratio in 1976 had been the average of all 38 countries (0.06 instead of 0.01), the average Mexican's income would be 8 percent greater today. This forecast must be viewed cautiously, however, since it does not specify *how* to enhance liquidity. Nevertheless, the example does illustrate the potentially large economic costs of policy, regulatory, and legal impediments to stock market development.

C. Size, volatility and growth

Other measures of stock market development do not tell the same story. For example, stock market size, as measured by market capitalization divided by GDP, is not a good predictor of future economic growth (figure 2), and greater stock return volatility does not forecast poor economic performance (figure 3). Countries with large stock markets appear no more likely than those with small ones to grow quickly. Nor does there seem to be a strong link between stock market volatility and economic growth. Liquidity – the ability to buy and sell equities easily – is what exhibits the strong connection to long-run growth.

D. IPOs and growth

This paper also examines the relationship between the primary equity market and long-run growth. This has not been studied before. With the full sample of countries, there is not a clear positive link between IPO and growth as illustrated in Figure 4. This lack of a strong link is supported by regression analyses that control for other country characteristics. However, it is important to note that two countries skew these results. That is, Taiwan and Korea are the fastest

[14] Moreover, countries with the most liquid stock markets in 1976 both accumulated more capital and enjoyed

growers but have virtually no recorded IPO activity over the limited time period for which I currently have data. If these countries are omitted, the positive relationship between growth and IPO becomes stronger as shown in Table 1. Table 1 presents regression results of average annual real per capita GDP growth over the 1976-1993 period (GROWTH) on IPO, while controlling for an assortment of other country characteristics. There is one observation per country. I follow the standard cross-country growth literature in controlling for a range of other country characteristics (e.g., Barro and Sala-i-Martin 1995; Easterly and Levine 1997; and Levine and Renelt 1992). In regression (1), I control for the logarithm of initial real per capita GDP (Income), the logarithm of secondary school enrollment (Enrollment), and the number of revolutions and coups per year (Revolutions). Regression (2) also includes the average annual inflation rate (Inflation) and the ratio of central government spending to GDP (Government). Regression (3) also adds the average annual black market exchange rate premium (Black Market Premium).

IPO is positively and significantly correlated with economic growth in regressions (1) and (2) at the 5 percent significance level, when Taiwan and Korea are excluded. When also controlling for Black Market Premium, the P-values rises to 0.087. This suggestive, though still inconclusive evidence, begs further study of the ties between long-run growth and primary market development. In sum, the above analysis focuses the growth spotlight on stock market liquidity and leaves, at least for now, other characteristics of stock markets in the shadows.

E. Stock markets, banks, and growth

The above analysis may elicit the following skeptical inquiry: Is there really an independent link between stock market liquidity and growth, or is stock market development merely highly correlated with banking sector development. Perhaps, banks are the real financial engines of growth and stock markets are mere sideshows. Indeed, Figure 5 shows that countries with well-developed banking systems – as measured by bank loans to private enterprises as a share of GDP – tend to grow faster than countries with underdeveloped banks.[15]

Empirically, the effect of stock markets on growth can be distinguished from the impact of banking development. To show this, the 38 countries were divided into four groups. The first group had greater-than-median stock market liquidity (as measured Value Traded) in 1976 and

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faster productivity growth over the next 18 years. See Levine and Zervos (1998).

greater-than-median banking development. Group two had liquid stock markets in 1976 but less-than-median banking development. Group three had less-than-median stock market liquidity in 1976 but well-developed banks. Group four had illiquid stock markets in 1976 and less-than-median banking development.

Countries with both liquid stock markets and well-developed banks grew faster than countries with both illiquid markets and under-developed banks (figure 6). More interestingly, greater stock market liquidity implies faster growth no matter what the level of banking development. Similarly, greater banking development implies faster growth regardless of the level of stock market liquidity. If one uses Turnover, one gets the same results. Moreover, after controlling for other country characteristics such as initial income, schooling, political stability, monetary, fiscal, trade, and exchange rate policies, the data still indicate that there is a strong link between growth and each measure of financial sector development (as shown in Levine and Zervos 1998a).

F. Growth: Potential interactions between banks and markets

The strong, positive link between economic growth and both stock market and banking sector development suggests a two-part question about the interactions between stock markets and banks:

> *Will an increase in banking development have a bigger (or smaller impact) on growth in the presence of relatively well-developed stock market; And will an increase in stock market development have a bigger (smaller impact) on growth in the presence of a relatively well-developed banking sector?*

To study this question, I used interaction terms. Specifically, let SMI stand for Stock Market Indicator, which can equal Capitalization, IPO, Value Traded, or Turnover. Let, Bank equal the bank development indicator, bank credit to the private sector divided by GDP. Finally, let **X** equal a matrix of control variables such as initial income, the level of schooling, and indicators of political stability, monetary, fiscal, trade, and exchange rate policies. Then, the following cross-country regressions were run:

$$\text{GROWTH} = a(\mathbf{X}) + b(\text{SMI}) + c(\text{Bank}) + d(\text{SMI*Bank}) + u,$$

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[15] This is shown more rigorously by King and Levine (1993a,b).

where u is the regression residual. If the coefficient, *d*, on the interaction term, SMI*Bank, is positive this would imply that an increase in stock market development, SMI, would have a bigger, positive impact on Growth, the greater the level of banking development. This was not the case, however. In all specifications, the coefficient on the interaction term, *d*, was highly insignificant. Taken together with the findings reported above, the data suggest that stock markets and banks are positively associated with growth. The data do not support the view that an improvement in stock market development will positively affect growth *more* in a country with a well-developed banking system. In sum, it is not stock markets *versus* banks; it is stock markets *and* banks. Each of these components of the financial system is an independently strong predictor of growth.

G. Other evidence

Although I present new evidence on causality below, it is worth highlighting the results of a growing body of empirical literature. Using different empirical methodologies, a variety of authors present evidence consistent with the view that finance causes growth. Taking a microeconomic approach, Rajan and Zingales (1998) show that, in countries with well-developed financial systems, industries that are naturally heavy users of external financing grow relatively faster than other industries. Alternatively, in countries with poorly developed financial systems, industries that are naturally heavy users of external financing grow more slowly than other industries. Furthermore, Demirguc-Kunt and Maksimovic (1998) show that firms in countries with better-developed financial systems grow faster than they could have grown without this access. Also, in an innovative event study, Jayaratne and Strahan (1996) show that when individual states of the United States relaxed intrastate branching restrictions the quality of bank loans rose and per capita GDP growth accelerated. Furthermore, Levine (1998, 1999) uses instrumental variables to extract the exogenous component of financial development. Then, the analyses show that the exogenous component of financial development is strongly, positively correlated with economic growth. Thus, while there is still room for skepticism, a growing and diverse literature is consistent with the view that better financial systems cause faster economic growth.[16]

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[16] On causality, Hansson and Jonung (1997), Neusser and Kugler (1998), Rousseau and Wachtel (1997), and Wachtel and Rousseau (1995) find that financial intermediation Granger-causes economic performance. Levine, Loayza, and Beck (1998) and Beck, Levine, and Loayza (1999) use dynamic panel econometric procedures to control for both potential endogeneity and omitted variable biases. They show that financial development exerts a

IV. Legal Environment and Stock Market Development

Since the financial system importantly influences economic development, policymakers have a responsibility to implement legal, regulatory, and policy reforms that promote healthy financial sector development. In turn, researchers have a responsibility to identify legal, regulatory, and policy reforms that promote healthy financial sector development. This section examines the relationship between the legal and accounting environment and stock market development. Specifically, I quantify the link between stock market development and measures of the legal treatment of shareholders and the effectiveness of the accounting system in providing comprehensive and comparable information about firms to investors. Finally, I trace the link from the legal and regulatory environment through stock market development and on to economic growth. Specifically, I study whether the exogenous component of stock market development – the component of stock market development associated with the legal and regulatory environment – explains long-run economic growth.

A.1. The legal environment: Overview

As described by Glendon et al. (1982) and Berman (1983), Roman law was compiled under the direction of Byzantine Emperor Justinian in the sixth century. As particular problems arose throughout Europe during subsequent centuries, Roman law was adapted and modified. Eventually, individual countries formalized individual legal codes. In the 17th and 18th centuries, the Scandinavian countries codified their national laws. The Scandinavian legal system has remained relatively unaffected by the sweeping influences of the German and especially English and French legal traditions.

The English legal tradition is not a civil law heritage. In a civil law system, legal scholars play a leading role in shaping laws. In the Common Law – English – legal tradition, laws are heavily influence by judges trying to resolve particular cases. Common Law was spread through conquest and colonization to various corners of the globe.

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causal impact on economic growth. Rousseau and Wachtel (1998) use time series procedures and show that equity market development cause growth. Finally, the microeconomic studies of Rajan and Zingales (1998) and Demirguc-Kunt and Maksimovic (1998) also suggest a causal link running from financial development to economic growth.

Napoleon directed the writing of the French Civil Code in 1804. The French Civil Code is relatively short and meant to be assessable to the general public. Napoleon was very proud of the French Civil Code and saw the permanence of the Code as more important than the fleeting nature of his military conquests. Indeed, he noted that, "[M]y true glory is not to have won 40 battles … Waterloo will erase the memory of so many victories ... But what nothing will destroy, what will live forever, is my Civil Code." He made it a priority to secure its adoption in all conquered territories. Thus, the Code was adopted in Italy, Poland, the low-countries, and the Habsburg Empire. France extended her legal influence during the colonial era to part of the Near East, northern and sub-Saharan Africa, Indochina, Oceania, French Guiana, and the French Caribbean islands. Furthermore, the French Civil Code shaped the Portuguese and Spanish legal systems, with obvious implications for Central and South America.

Almost a century later, Bismarck directed the writing of the German Civil Code. The massive effort to construct the German Civil Code began in 1871 and was completed in 1896. The German Civil Code has no parallel in terms of comprehensiveness and detail. The German Civil code shaped the legal systems of Austria, China, Hungary, Japan, and Switzerland. Through China and Japan, the German Civil Code also exerted a powerful influence on the legal traditions of Korea and Taiwan.

Based on the work of legal scholars, LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998; henceforth LLSV) categorize countries as having predominantly English, French, German, and Scandinavian legal origins. Since English, French, and German systems were spread primarily through conquest and imperialism, I view legal origin as an exogenous "endowment" in studying the relationship between the legal system and financial sector development.

LLSV (1998) show that legal origin materially influences the legal treatment of shareholders and regulations governing corporate information. English law countries have laws that emphasize the rights of minority shareholders to a greater degree than the French, German, and Scandinavian countries. French civil law countries protect shareholders the least, with German and Scandinavian civil law countries falling in the middle. In terms of regulations governing corporate information disclosure, countries with a French legal heritage have the lowest quality information. LLSV (1998) also examine the quality of law enforcement. While legal codes are important, effectively and efficiently enforcing those laws is critical for financial sector operations. LLSV (1998) find that countries with a French legal heritage have the lowest quality of law enforcement, while countries with German and Scandinavian legal traditions tend to be the best an enforcing contracts. Thus, legal heritage importantly shapes the current legal/regulatory environment governing financial sector transactions.

A.2. The legal environment: Data

Consider the connection between the legal protection of minority shareholders and the liquidity of equity markets. Conceptually, legal systems that protect shareholders, especially minority shareholders, encourage greater participation. Shareholders exercise their power by voting for directors. Thus, to quantify the legal treatment of shareholders, I use five measures of the voting rights of shareholders.[17]

PROXY equals 1 if shareholders can vote either by showing up in person, sending an authorized representative, or mailing in their vote. PROXY equals 0 if shareholders cannot vote by mail. This can impede shareholder participation since because they must either attend the meeting or go through the legal procedure of designating an authorized representative.

CUMULATIVE equals 1 if the Company Law or Commercial Code allows shareholders to cast their votes for one candidate, and 0 otherwise. The ability to vote all one's shares for one candidate may make it easier for minority shareholders to put their representatives on boards of directors.

BLOCKED equals 1 if the Company Law or Commercial Code does *not* allow firms to require that shareholders deposit their shares prior to a General Shareholders Meeting, thus preventing them from selling those shares for a number of days, and 0 otherwise. When shares are blocked in this manner, the shares are kept in custody until a few days after the meeting. This practice prevents shareholders that do not bother to go through this arduous exercise from voting.

MINOR equals 1 if the Company Law or Commercial Code grants minority shareholders either a judicial venue to challenge the management decisions or the right to step out of the company by requiring the company to purchase their shares when they object to certain fundamental changes, such as mergers, assets dispositions and changes in the articles of incorporation. The variable equals 0 otherwise.

MEETING equals 1 if the minimum percentage of ownership share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than 10 percent, and 0

[17] The variable descriptions that follow are taken directly from LLSV (1998).

otherwise. The minimum percentage of ownership share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting ranges from one to 33 percent with a median of 10 percent. Mexico has the highest value in the sample of countries. Presumably, the harder it is for minority shareholders to call a meeting and contest management the less attractive it will be for agents to participate in equity markets.

SRIGHTS aggregates these five indicators into a conglomerate index of shareholder rights.

A.3. The regulatory/accounting environment: Data

Besides the legal rights of shareholders, it is also important to consider information about firms. Information about corporations is critical for exerting corporate governance and identifying the best investments. These activities will be facilitated by accounting standards that simplify the interpretability and comparability of information across corporations. Furthermore, many types of financial contracting use accounting measures to trigger particular actions. These types of contracts can only be enforced and will only be used if accounting measures are reasonably unambiguous. Since accurate information about corporations may improve financial contracting and intermediation, the paper examines a measure of the quality, comprehensiveness, and comparability of information disclosed through corporate accounts from LLSV (1998). Accounting standards differ across countries and governments impose an assortment of regulations regarding information disclosure and accounting standards. Thus, I often refer to measures of the quality of information in corporate financial statements as reflecting the regulatory system.

ACCOUNT is an index of the comprehensiveness and quality of company reports. The maximum possible value is 90 and the minimum is 0. The Center for International Financial Analysis and Research assessed general accounting information, income statements, balance sheets, funds flow statement, accounting standards, and stock data in company reports in 1990. Given the importance of information in financial contracting, I expect ACCOUNT to be positively correlated with stock market activity.

A.4. Summary statistics on the legal and accounting environment

Table 2 provides summary statistics on SRIGHTS and ACCOUNT. The data are sorted by region. There is substantial cross-country variation, where the maximum value is 5, the minimum value is 0, and the standard deviation is about 1.2. Belgium, Italy, and Mexico (all countries with a French legal origin) are countries where SRIGHTS equals the minimum value of zero, indicating that their legal systems do not stress the rights of minority shareholders. In contrast, the legal codes of the United States stress the rights of shareholders, such that SRIGHTS=5.

The French legal tradition is clearly evident in Latin America. This region's legal system places comparatively less emphasis on the legal rights of shareholders, particularly minority shareholders, than other regions (Table 2). The average value of the SRIGHTS indicator of the legal protection of shareholders equals 2 in Latin America, which is the same as in France and about equal to the average of French Civil Law Countries (Table 3). It is also important to note the cross-Latin America variation. The legal codes of Argentina, Brazil, and Chile actually place a comparatively high priority on minority shareholder rights, while Colombia, Mexico, and Venezuela are far below the international average. As with other French Civil Law countries, Latin America tends to provide less comprehensive and comparable information about corporations to investors as shown by the low value of ACCOUNT in Table 2. The Latin American average of 48 is about the same as the average for all French Civil Law countries, 51 (Table 3).

Moreover, Latin America's comparatively weak legal protection of shareholders and its relatively uninformative accounting systems have a price: comparatively poor stock markets. Latin America's stock markets over the period tended to be smaller (Capitalization, IPO) less active (Value Traded), and more volatile (Volatility) than the markets of other regions of the world as shown in Table 2. Finally, it is worth noting that a general index of the efficiency of the legal system in enforcing contracts (ENFORCE) is also notably lower in Latin America. As emphasized by LLSV (1998, 1997), these tendencies can be traced back to Latin America's French legal heritage as illustrated by Table 2b.

B. Regressions of stock market size on legal and accounting variables

Table 3 presents cross-country regressions that examine more rigorously the connection between the legal rights of shareholders, the accounting regime, and stock market size. The dependent variable is either Capitalization or IPO. As regressors, each of the regressions includes a constant and INCOME. I control for INCOME since the overall level of economic development may influence stock market size. I want to isolate the relationship between market size and both the legal rights of shareholders, SRIGHTS, and the quality of corporate financial statements, ACCOUNT. Regression 1 includes the constant, INCOME and SRIGHTS. Regression 2 includes a constant, INCOME, and ACCOUNT. Regression 3 includes all of the explanatory variables.

The data indicate a strong link between SRIGHTS and ACCOUNT. Both SRIGHTS and ACCOUNT enter all of the regressions with positive and significant coefficients (at the 0.05 level). Even after controlling for the level of real per capita GDP, countries with legal systems that emphasize the rights of shareholders – especially minority shareholders – enjoy larger markets. Similarly, countries that have regulatory/accounting regimes that produce comparable and comprehensive information about firms tend to have larger stock markets. The data also suggest that the links are economically large. For instance, a one standard deviation increase in ACCOUNT (12) translates into a 0.144 rise in Capitalization (0.144=12*0.12), which is a bit less than the median value of Capitalization (0.19).

C. Regression of stock market liquidity on legal and accounting variables

The data also indicate a strong link between stock market liquidity and the availability of high quality information about firms. As shown in Table 4, there is a statistically significant relationship between ACCOUNT and the two measures of stock market liquidity, Value Traded and Turnover when controlling for the legal rights of shareholders. In contrast, shareholder rights do not have a very robust link with stock market liquidity. This differs from the results in Table 3, where SRIGHTS were strongly linked with markets size. Thus, good information, ACCOUNT, is strongly linked with both market size and liquidity, while SRIGHTS is strongly associated with overall market size, but not with market activity. These findings stress the importance of good regulations governing information disclosure.[18] Furthermore, the relationship between ACCOUNT and liquidity is economically meaningful. For example, a one standard deviation increase in ACCOUNT (12) increases Value Traded by 0.058 (0.058= 0.0048*12), which is about the median value of Value Traded in the sample (0.054). Although the R-squares in these regressions are low, about 10 percent, the legal and accounting variables do help account for cross-country variations in stock market size and liquidity.

Before continuing, it is critical to note that SRIGHTS is not simply proxying for the overall quality of a country's legal system. As shown by Levine (1998, 1999), legal variables that define the rights of creditors are closely connected to banking sector development. But, SRIGHTS is not highly correlated with banking sector development. Also, the legal rights of creditors are not highly correlated with stock market development. Thus, the legal variables are capturing particular aspects of the legal environment. They are not proxying for overall legal efficiency.

D. Link legal and regulatory environment to stock market and then to growth

Thus far, I have explored two distinct links in the chain running from policy levers to economic growth. First, there is a growing abundance of evidence that better functioning stock markets are associated with more rapid economic growth. Second, there are particular characteristics of legal and regulatory systems that promote better functioning stock markets. Moreover, Latin American countries, perhaps because of their French legal heritage, tend to have legal and regulatory (accounting) systems that discourage stock market development. The general implication of these findings is that policymakers can promote economic development by legal and regulatory changes that bolster the legal rights of shareholders and encourage firms to publish comparable and comprehensive financial statements. The analysis, however, has not yet put the two links of the chain together.

This subsection uses instrumental variable procedures to determine whether the exogenous component of stock market development is linked with long-run growth. Specifically, I examine the component of stock market development defined by the legal and regulatory regime is positively associated with economic growth. As instrumental variables, I use the SRIGHTS and ACCOUNT variables defined above. The basic regression takes the form:

(1) $$\text{GROWTH} = a + b\text{SMI} + g\boldsymbol{X} + \varepsilon,$$

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[18] Recall that the strong between long-run growth and stock market development runs primarily through market liquidity, which highlights the important of comprehensive and comparable data in facilitating stock market activity.

where the dependent variable, GROWTH is real per capita GDP growth over the 1976-1993 period, SMI is either Value Traded, Turnover, Capitalization, or IPO, and ***X*** represents a matrix of conditioning information that controls for other factors associated with economic growth. I use SRIGHTS and ACCOUNT as instrumental variables for each of the SMI indicators and use a Generalized Method of Moments estimator.

To control for “other factors,” I include three different conditioning information sets.[19] Conditioning information set #1 includes a constant, the logarithm of initial per capita GDP, the logarithm of initial secondary school enrollment, and the number of revolutions and coups.[20] Conditioning information set #2 includes these variables plus the government spending to GDP, inflation, and the black market exchange rate premium. Conditioning information set #3 includes all the control variables in conditioning information set #2 plus Bank, which equals bank credit to the private sector divided by GDP.

The results indicate a strong, positive relationship between the exogenous component of stock market development and economic growth. Table 5 summarizes the results from twelve GMM regressions: three regressions, based on the three conditioning information sets, for each of the four stock market indicators, Value Traded, Turnover, Capitalization, and IPO. In Table 5, I only present coefficient estimates on the stock market indicators, i.e., Table 5 does not present the results on the other regressors. For the simple conditioning information set, Table 6 provides the full regression results. After controlling for a wide array of factors, the exogenous component of Value Traded, Capitalization, and IPO all enter the growth regression with coefficients that are significant at the 0.05 level and Turnover is significant at the 0.10 level. Tests of the overidentifying restrictions support the econometric specification. Specifically, the tests indicate that shareholder rights and accounting system quality do not affect growth other than through stock markets development and the other explanatory variables. Thus, I am not claiming that the legal system affects growth only through financial market development. The results do, however,

[19] These conditioning information sets reflect the large cross-country growth regression literature. For a discussion of these variables, see Barro and Sala-i-Martin (1995), Easterly and Levine (1997), or Levine and Renelt (1992).
[20] The initial income variable is used to capture the convergence effect highlighted by Barro and Sala-i-Martin (1995). As in many cross-country analyses, initial secondary school enrollment is used to control for investment in human capital accumulation as emphasized by Lucas (1988). Barro and Sala-i-Martin (1995) examine the link between political stability and economic growth.

suggest that simultaneity bias is not driving the strong positive relationship between equity market development and long-run growth.

Moreover, the strong link between the exogenous component of stock market development and growth holds using alternative instrumental variables. Specifically, I also used the dummy variables for legal origin, either English, French, or German, as instrumental variables without using SRIGHTS and ACCOUNT. Table 7 presents these results. The findings with these alternative instruments are very similar to those reported in Table 5, except that IPO no longer enters significantly and Turnover's P-value falls below 0.05. The stock market indicators of secondary market development are robustly correlated with economic growth. The exogenous component of stock market development – *the component of stock market development defined by the legal environment* – is positively associated with long-run economic growth. These instrumental variable regressions also pass the test of the over-identifying restrictions, so that the econometric specification is consistent with the data. Simultaneity biases are not driving the results; the data suggest that equity market development exert a causal impact on economic growth.

The linkages from the regulatory regime through stock market liquidity to long-run growth are economically meaningful. For example, the results imply that if Argentina implemented regulatory changes that improved the quality of corporate financial statements from the recorded value of 45 to the average for OECD countries (65), the growth would be 0.6 percentage points faster per year. This is quire large, considering that Argentina real per capita GDP growth averaged only about 0.2 percentage points per year over this period. Furthermore, after a decade, 0.6 percentage points faster per capita GDP growth implies that each Argentinean would be earning 6 percent more *per year*. This is meant to be illustrative. Since the analysis does not consider any country in detail, the coefficients should not be applied to any individual country. Instead, the example serves to demonstrate the large potential costs, in terms of slower long-run growth, of permitting poor information disclosure to persist.

V. Cautionary Notes

It is important to be clear about what these results do not show.

First, the paper does *not* show that economic growth does not influence stock markets. The results do not contradict the argument that causality runs in both directions: financial development influences economic growth, and economic growth influences financial sector development. Rather, this paper provides evidence for the hypothesis that the exogenous component of stock market development promotes economic growth.

Second, this paper does not examine a slew of factors that may influence the operation of stock markets. For instance, a wide range of regulations influence stock market activity beyond those summarized by SRIGHTS and ACCOUNT. These range from listing requirements, to requirements governing the trading of securities, to supervision of broker/dealers, etc. Furthermore, the paper does not consider differences in the organization and trading technologies of individual exchanges. Market microstructure may importantly influence stock market development. These factors were omitted due to data availability, not to potential relevance. Rather, this paper makes more limited points: legal heritage is closely linked to the legal rights of shareholders and the quality of corporate financial statements; legal and accounting characteristics influence stock market size and liquidity; and the exogenous component of stock market development is strongly linked with long-run rates of economic growth.

Third, the empirical results in conjunction with the theoretical overview do not imply that every country needs its own active bourse. Conceptually, firms and savers benefit from easy access to liquid stock markets. It is the ability to trade and issue securities easily that facilitates long-term growth, not the geographical location of the market. Thus, capital control liberalization may improve the ability of firms to raise capital both by improving the liquidity of domestic exchanges and by providing greater access to foreign exchanges.[21]

Fourth, as noted earlier, this paper uses cross-country comparisons. It does not examine any single country in depth. Thus, while the paper has very clear policy implications, these must be viewed as illuminating a reform strategy. The paper does not offer a precise blueprint.[22] Nonetheless, the results – and therefore the policy implications – jump-out. Particular characteristics of the legal and regulatory environment are strongly linked with how well the stock exchange operates, with important spillovers for economic development.

Finally, things are changing in Latin America, and "Latin America" is not a single entity. By making broad international comparisons, I do not focus on inter-Latin America differences.

[21] See Levine and Zervos (1998b) for empirical evidence that countries that liberalize international capital control restrictions see a marked improvement in the functioning of their stock markets.
[22] See Holden and Sobotka (1999), Summers (1999), and Wallis (1999).

For example, while Mexico has comparatively good accounting standards, the quality of the financial statements for the rest of the countries of Latin America average almost two standard deviations below the international mean. Nevertheless, the strong connections between its Napoleonic legal heritage, its generally weak legal and regulatory framework, its comparatively poorly developed markets, and its less than desirable rate of growth certainly make this analysis as relevant for Latin America as for any other region. It is also true that many countries have engaged in serious reforms to improve the operations of their markets. Nonetheless, the time period does not seem to dictate the results. For example, if one considers only the 1990s, Latin America still suffers by international comparisons. For those countries that have already implemented reforms to boost shareholder rights, improve information availability, and enhance the operation of stock exchanges, this paper can be viewed as encouragement for a road already begun rather than as suggesting a new direction for policy reform.

VI. Conclusions and Policy Tips

The paper shows that particular characteristics of national legal and regulatory systems -- the protection of minority shareholders and the quality of corporate financial statements -- exert a major influence on stock market development. Stock markets, in turn, help determine the rate of long-run growth. Walter Bagehot argued in the mid-1800s that only excellent financial systems funnel capital to those enterprises that spur economic growth. This paper builds on the work of LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1997) in showing that legal and regulatory systems play enormous roles in determining which financial systems are excellent. Thus, governments can augment capital market development by protecting the rights of minority shareholders and by encouraging corporations to publish high-quality, comparable financial statements.

The paper also shows that Latin America stands out. It has relatively weak accounting standards and Latin America's legal system is comparatively lax in enforcing the rights of minority shareholders. Once one views the strong empirical connection between the legal and regulatory environment, the financial system, and growth, Latin America's legal and regulatory systems stand out as deserving particularly careful scrutiny as it looks to promote faster growth in the future.

These results have implications for legal reform in Eastern Europe, the former Soviet Republics, and other countries. Laws, enforcement mechanisms, and accounting systems matter for capital market development with consequent repercussions on long-run growth. Government's interested in economic development, therefore have an important role to play in defining and enforcing property rights and in encouraging the dissemination of sound information. This paper's analyses suggest that legal traditions that stress the rights of shareholders and promote sound accounting standards offer tangible benefits over alternative legal systems.

The analysis in the paper supports a two-pronged reform strategy. First, the results motivate a detailed evaluation of the legal treatment of minority shareholders and regulatory and policy changes that can improve the quality, comparability, and comprehensiveness of information about corporations. Improvements along these lines offer substantial growth dividends.

The second prong recognizes that it is very difficult to change legal codes and searches for other means of boosting the position of minority shareholders and fostering better accounting standards. For instance, stock exchanges can promote better corporate governance through their listing requirements. As a condition to having its securities traded on the exchange, a company can be required to adopt more effective means of protecting minority shareholders. This might include (1) greater information disclosure by listed companies - both periodic reporting and requirements to make timely disclosure of special events (including transactions with affiliates), (2) tighter accounting standards, and (3) creating and promoting standards for arbitration of shareholder claims (or perhaps sponsor its own arbitration system). Furthermore, regulators and exchange officials could encourage companies to incorporate into their articles of incorporation/by-laws important minority shareholder protections that go beyond those currently required by law. These additional provisions can include (1) outside (non-management) director requirements, (2) disclosure of related party transactions and management compensation, (3) super-majority or outside director approval for transactions with related parties, (4) rotation of outside independent auditors, (5) periodic reporting by outside auditors to shareholders, and (6) mandatory private arbitration of disputes between shareholders and the company/management.[23]

Looking forward, much research remains. This paper's aggregate, cross-country approach should be complemented with detailed case studies. For Latin America, it is unrealistic and probably unwise to toss-out the French Commercial Code and start again. Nonetheless, parts of Canada and the United States (Louisiana) have successfully modified their legal approaches to financial contracting. More recently, Argentina has enacted major changes in its legal treatment of shareholders. Detailed information on successes and failures will help foster more successes in the future. To make sound policy recommendations, we also need more data. We do not have comprehensive cross-country data on the costs associated with primary and secondary market activities. We do not have extensive cross-country information on listing requirements or the full range of securities markets regulations, so that we can compare the efficacy of different approaches. We do not have complete information on primary market offerings in equity or bond markets. Thus, analysts cannot investigate the links between secondary market liquidity and the ability to issue new securities. Finally, we only have information on the legal codes governing shareholders for 50 countries. Additional data would provide more accurate information on the relationship between stock market development and economic growth. Given the importance of

[23] Of course, the exchange will be sensitive to the effects such additional requirements may have on the decision by potential issuers to list their securities on the exchange. Nevertheless, better corporate governance will, in the long run, increase the financial benefits of listing on the exchange by promoting greater participation by savers.

financial markets for economic growth, this agenda should receive a high priority.

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